

CLAIMS

What is claimed is:

1. A system for saving power in a wireless network having two or
5 more stations, at least some of the stations associated with the wireless network
comprising:
a partial address associated with a subset of the destination MAC address
of a receiving station in the wireless network; and
a PHY layer filtering protocol configured to generate and write the partial
10 address into a PHY layer header portion of a frame of a sending station in the
wireless network, or configured to read the partial address from the PHY layer
header portion of a frame of the receiving station upon receipt of a data frame,
wherein a plurality of receiving stations having the PHY layer filtering
protocol associated with the wireless network determine at the PHY layer
15 whether the partial address received in the PHY layer header portion of a
received frame matches an internal partial address, and
wherein the plurality of receiving stations reject the received frame if no
match is found or the partial address in the received frame is a predetermined
value.
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2. The system of claim 1, wherein the generation of the partial
address is done in the MAC layer and passed to the PHY layer.
3. The system of claim 2, further comprising a writable register for
25 passing the generated partial address from the MAC layer to the PHY layer.
4. The system of claim 3, wherein upon power-up of a receiving
station, the internal partial address is passed from the MAC layer to the PHY
layer.

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5. The system of claim 4, wherein the internal partial address of a receiving station is a subset of the stations' own MAC address.

6. The system of claim 1, wherein the PHY layer filtering protocol is further operable to write a predetermined value into the partial address PHY layer header portion to indicate one of a group addressed frames, a control frame, and a management frame for disabling the PHY layer filtering in a receiving station.

7. The system of claim 6, wherein the predetermined value written into the partial address contains all zeros.

8. The system of claim 6, wherein a receiving station is further operable to determine from the predetermined value in the partial address whether one of a group addressed frames, a control frame, and a management frame is indicated for disabling the PHY layer filtering for these type frames in a receiving station, or whether a partial address match is present, thereby indicating that further decoding of the complete destination MAC address is required.

9. The system of claim 1, wherein each receiving station is further operable to read a partial address from the PHY layer header portion upon reception of each frame using the PHY layer filtering protocol.

10. The system of claim 1, wherein the PHY layer filtering protocol is further operable to write the partial address into the PHY layer header portion of a sending station upon transmission of a normal data frame.

11. The system of claim 1, wherein the partial address is written into newly defined bits in the PHY layer header portion.

12. The system of claim 1, wherein the partial address is written into currently reserved bits in the service field of the PLCP header.

13. The system of claim 1, wherein the partial address is written into
5 newly defined bits in the PHY layer header portion.

14. The system of claim 1, wherein the partial address is written into newly defined bits in the PLCP header.

10 15. The system of claim 1, wherein the partial address in the PHY layer header portion comprises a subset of the destination MAC address having two or more bits.

15 16. The system of claim 1, wherein the PHY layer filtering protocol is further operable to generate the partial address as a combination of all or part of the vendor identification bits and a subset of the destination MAC address bits.

17. The system of claim 1, wherein the generation of the partial address comprises selecting a subset of the destination MAC address bits and
20 writing the information from the bits into the PHY layer header portion.

18. A method of saving power in a wireless network, comprising:
generating a partial address associated with a subset of a destination
MAC address of a receiving station in the wireless network;
25 writing the partial address in a PHY layer header portion of a data frame;
and
sending the data frame to a plurality of stations associated with the
wireless network.

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19. The method of claim 18, further comprising:
receiving the data frame at each of the plurality of stations associated with
the wireless network;

5 comparing the partial address in the PHY layer header portion of the data
frame to a partial address associated with each of the plurality of stations at the
PHY layer thereof; and

activating a MAC layer component within one or more the plurality of
stations if the partial address in the PHY layer header portion of the data frame
matches the partial address in the one or more of the plurality of stations,
10 respectively.

20. The method of claim 18, further comprising:

determining whether a data frame to be transmitted comprises a group
addressed or control/management frame; and

15 writing a predetermined value for the partial address into the PHY layer
header portion of the data frame if the data frame is determined to be a group
addressed or control/management frame.

21. The method of claim 18, wherein the generating of the partial
20 address is done in the MAC layer of a station in the wireless network.

22. The method of claim 18, wherein the partial address is passed from
the MAC layer to the PHY layer of a station in the wireless network.

25 23. The method of claim 18, wherein the generation of the partial
address comprises selecting a subset of bits of the destination MAC address and
writing the subset of bits into the PHY layer header portion of the data frame to
be transmitted.

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24. A method of saving power in a wireless network, comprising:
storing a partial address in a PHY layer of a station, the partial address
associated with a subset of the stations' own MAC address;
receiving a data frame in the PHY layer, the data frame containing a
5 partial address in a PHY layer header portion thereof;
determining whether the partial address of the received data frame
matches the partial address stored in the PHY layer of the station; and
rejecting the data frame if the partial addresses do not match.

10 25. The method of claim 24, wherein rejecting the data frame further
comprises preventing activation of a MAC layer portion of the station, thereby
preventing power consumption associated therewith.

26. The method of claim 24, further comprising:
15 sending the received data frame to a MAC layer of the station for further
address decoding if the partial address matches that of the station.

27. The method of claim 24, further comprising:
determining whether the partial address of the received data frame
20 comprises a predetermined value; and
sending the received data frame to the MAC layer of the station for further
address decoding of the partial address comprises the predetermined value.

28. The method of claim 24, wherein storing a receiving stations' own
25 partial address in the PHY layer comprises writing the partial address from a
register in the MAC layer of the receiving station to the PHY layer of the receiving
station upon power-up.

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29. The method of claim 22, wherein determining whether the partial addresses match comprises decoding the partial address data in the PHY layer header portion of the received frame prior to a comparison of the partial addresses.

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